



Intolerance of uncertainty, worry, and rumination in major depressive disorder and generalized anxiety disorder

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ABSTRACT

Intolerance of uncertainty (IU) can be defined as a cognitive bias that affects how a person perceives, interprets, and responds to uncertain situations. Although IU has been reported mainly in literature relating to worry and anxiety symptoms, it may be also important to investigate the relationship between IU, rumination, and depression in a clinical sample. Furthermore, individuals who are intolerant of uncertainty easily experience stress and could cope with stressful situations using repetitive thought such as worry and rumination. Thus, we investigated whether different forms of repetitive thought differentially mediate the relationship between IU and psychological symptoms. Participants included 27 patients with MDD, 28 patients with GAD, and 16 patients with comorbid GAD/MDD. Even though worry, rumination, IU, anxiety, and depressive symptoms correlated substantially with each other, worry partially mediated the relationship between IU and anxiety whereas rumination completely mediated the relationship between IU and depressive symptoms.

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1. Introduction

Intolerance of uncertainty (IU) can be defined as a cognitive bias that affects how a person perceives, interprets, and responds to uncertain situations on a cognitive, emotional, and behavioural level (Dugas, Schwartz, & Francis, 2004). More specifically, individuals who are intolerant of uncertainty regard ambiguity as stressful, frustrating, and anxiety provoking, and believe that uncertain situations should be avoided. They also have a tendency to overestimate the possibility of unpredictable or negative events and make threatening interpretations of ambiguous information. Thus, individuals who are intolerant of uncertain situations are vulnerable to dysfunctional reactions and negative moods.

Numerous studies have found elevated IU to be associated with heightened distress and worry. In particular, IU has been demonstrated to have a strong relationship with worry, and after controlling for other factors related to worry, such as positive beliefs about the function of worry, perceived self control, and perfectionism, IU exhibited a unique contribution to worry (Buhr & Dugas, 2006; Laugesen, Dugas, & Bukowski, 2003). Also according to recent treatment studies, intervention including strategies aimed at facilitating clients' tolerance of uncertainty reduces the level of worry and anxiety in patients (Dugas & Ladouceur, 2000). Thus, considerable amounts of data suggest that IU is a key component

in generating and maintaining worry. From a clinical perspective, excessive worry is a primary symptom of generalized anxiety disorder (GAD) and a commonly associated feature in many other anxiety disorders (APA, 1994).

Even though IU, as described in this paper, has been reported mainly in literature related to anxiety symptoms, it may be also important to investigate the relationship between IU and depression. As many aspects of life contain uncertainty and ambiguity, individuals who are intolerant of uncertainty can be easily unbearable in everyday stressful events, and therefore, demonstrate a high level of distress. Also, individuals high in intolerance of uncertainty may believe that they lack sufficient problem solving skills to effectively manage ambiguous situations and thereby, would cause low self-esteem. Thus, individuals who are intolerant of uncertainty are likely to experience a negative affect, and may be vulnerable to depression. Furthermore, depressed individuals tend to predict negative future events as certain to occur and positive future events as certain not to occur, a phenomenon called depressive predictive certainty (Garber, Miller, & Abramson, 2000). Depressed individuals have difficulty tolerating the discomfort of uncertainty and thus, dealing with it. Therefore, they use past negative events as a basis for their event predictions. These thought processes lead to certainty about undesired future events (Dupuy & Ladouceur, 2008). It is possible that depressive people prefer living in the pessimistic certainty rather than tolerating the present of uncertainty. Therefore, IU could be also prevalent in depression and not only specific to anxiety. In that respect, studies have suggested a relationship between depression and IU (Berenbaum, Bredemeier, &

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Thompson, 2008; de Jong-Meyer, Beck, & Riede, 2009). However, these studies that have demonstrated that relationship between depression and IU were mainly based on the community sample, creating some uncertainty regarding this relationship. Thus, one of the goals of this study was to investigate the relationships between IU, depression, and anxiety in a clinical sample (MDD, GAD, and comorbid MDD/GAD) and we expected that IU would be related to both anxiety and depression.

Although many studies examining IU have focused on worry as a coping strategy or information processing bias, worry and rumination share a common entity, that being that both are modes of mental coping with a negative mood and are repetitive thought processes. Individuals who are intolerant of uncertainty easily experience stress, which can subsequently, trigger negative emotions, potentially leading them to cope with stressful situations using dysfunctional cognitive process such as worry or rumination. In this way, IU would be related not only to worry but also to rumination. Further, de Jong-Meyer et al. (2009) reported that IU was correlated with both worry and rumination. It is possible that persons who are intolerant of uncertainty use repetitive thinking to reduce their uncertainty, and repetitive thought may promote deep processing of affect-relevant schemas, and amplify affective states (McIntosh & Martin, 1992). In this respect, we hypothesized that the relationship between IU and psychological symptoms would be mediated by worry and rumination.

More precisely, rumination is significantly associated with vulnerability to depressed mood and to other trait markers of depression (Nolen-Hoeksema & Morrow, 1991; Spasojevic, Alloy, Abramson, MacCoon, & Robinson, 2004) whereas worry is a thought of future threat, better correlate with anxiety than depression (Beck, Brown, Steer, Eidelson, & Riskind, 1987). However, the assumption that worry was strictly related to anxiety and rumination to depression has been challenged recently (Hong, 2007). Segerstrom, Tsao, Alden, and Craske (2000) assessed the relationship between worry and rumination in anxiety and depression using structured equation modelling. They suggested that repetitive thoughts such as worry and rumination did not differentially relate to anxiety or depression. Further, findings of Muris, Roelofs, Meesters, and Boomsma (2004) demonstrated in non-clinical samples that rumination and worry correlated more strongly with anxiety than with depression, and that rumination was unable to predict depression after controlling for worry. Thus, results from previous studies indicate that the relationship between anxiety, depression, worry, and rumination is presently unclear. Thus, another purpose of this study was investigate whether the different forms of repetitive thought differentially mediate the relationship between IU, depression, and anxiety using a multiple mediation model.

We hypothesized that the relationship between IU, anxiety, and worry could be extended to depression and depressive rumination. We also predicted that the relationship between IU and anxious and depressive symptoms would be mediated by repetitive thinking. Such a mediated relationship would suggest that IU would be related to anxiety and depression differently through a different form of repetitive thought.

2. Methods

2.1. Participants and procedure

Subjects were recruited on an outpatient basis from the Department of Psychiatry, CHA Bundang Medical Center, from July to October, 2009. Subjects ranged in age from 20 and 50 years, with a mean age of 38.6 years (standard deviation, SD=11.1). All participants complained depressive and anxiety symptoms

had the first psychiatric interview by one psychiatrist and then they were diagnosed by a licensed clinical psychologist using the MINI-International Neuropsychiatric Interview. Of the recruited 84 patients, 71 patients (52 were women and 19 men) fulfilled the DSM-IV criteria for pure MDD, GAD, and comorbid MDD/GAD. The clinical group was composed of 27 participants with MDD, 28 participants with GAD, and 16 participants with MDD/GAD. There were participants in the comorbid MDD/GAD group who developed GAD before MDD and MDD before GAD. Individuals suffering from comorbid disorders beyond GAD and MDD were excluded from participation because we decided to control sample coherence. All study procedures complied with the CHA Bundang Medical Center Institutional Review Board regulations and were conducted in accordance with the Declaration of Helsinki and the principles of Good Clinical Practice. Written informed consent was obtained after providing subjects with a full description of the study.

2.2. Measures

2.2.1. MINI-International Neuropsychiatric Interview

The MINI-International Neuropsychiatric Interview (M.I.N.I.) is a structured diagnostic interview, developed to assess the diagnoses of psychiatric patients according to DSM-IV and ICD-10 criteria in less time than other diagnostic interviews such as the Structured Clinical Interview for DSM-IV disorders (SCID). The interview takes approximately 15–20 min. The M.I.N.I. is an ideal choice for research purposes due to its characteristic brevity and good psychometrics (Sheehan, Lecrubier, & Sheehan, 1998).

2.2.2. Hamilton rating scale for anxiety

The Hamilton rating scale for anxiety (HAM-A), developed by Hamilton (1959), is a semi-structured 14-item interview designed to assess the severity of anxiety symptoms. This scale consists of two factors, general psychological anxiety symptoms and cognitive symptoms, and is rated on a five-point scale, where five represents the greatest level of anxiety. We used the Korean version of Ham-A translated by Kim (2000).

2.2.3. Hamilton rating scale for depression

The Hamilton rating scale for depression (HAM-D) is a clinician-rated scale, and is one of the most widely used in the assessment of depression (Hamilton, 1960). The HAM-D contains items assessing somatic symptoms, insomnia, anxiety, working capacity, mood, guilt, psychomotor agitation, and insight. It is rated on a five-point scale. Korean version of Ham-D also showed reasonable validity and reliability (Yi et al., 2005).

2.2.4. Intolerance of uncertainty scale

The intolerance of uncertainty scale (IUS) is a 27-item measure designed to assess several aspects of IU (Freeston, Rheaume, & Letart, 1994). The IUS includes the emotional and behavioural consequences of being uncertain, the expectation that the future will be predictable, the level of frustration when it is not, attempts to control the future, and all-or-nothing responses in uncertain situations. The scale is rated using a five-point Likert scale. Although this scale was initially developed in French, an English version has also been validated (Buhr & Dugas, 2002). We used IUS translated by Choi (1997) into Korean for research purpose and the IUS has shown high internal consistency in present study (Cronbach's alpha: .937).

2.2.5. Penn State Worry Questionnaire

The Penn State Worry Questionnaire (PSWQ) is a 16-item inventory, and is most frequently used to assess pathological worry in both clinical and non-clinical populations (Meyer, Miller, Metzger, & Borkovec, 1990). The PSWQ is designed to measure the generality, excessiveness, and uncontrollability of pathological worry. It

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